IDNR responses to EPA comments regarding Iowa's Antidegradation Implementation Procedure
July 3, 2008

General Comments

EPA cannot determine how IDNR is defining an "expanding discharge" within the draft AIP. Please clarify the following:

1) Whether an expanded discharge applies to either a request for higher permit limits, increased mass loading, or both;

   Antidegradation applies to any permitting action regarding a regulated discharge of a new or increased amount of a pollutant of concern. A request for "higher" permit limits for either concentration or mass limits will trigger an antidegradation review.

2) Whether a mass loading increase from a permitted discharge triggers an antidegradation review;

   A mass loading increase in the sense of increased mass permit limits will trigger an antidegradation review.

3) How IDNR defines an expanded discharge;

   The term "expanded discharge" is not formally defined. IDNR did attempt to formally define this term, but the many different nuances involved in the definition of this term made the definition cumbersome and difficult to understand. Therefore, Section 2.1 in the AIP provides the guidelines for determining the appropriateness of degradation.

4) How the IDNR will determine degradation when analyzing design flows used to calculate permit limits, versus using the overall design flow capacity of a facility. This explanation should include a discussion or example of how waste load allocations and availability of assimilative capacity of a water body will be calculated.

   The department uses the overall design flow when calculating water quality-based permit limits. For example, if a City is planning an expansion of their wastewater treatment plant to accommodate future growth and proposes an increase of overall design capacity from 1 MGD to 2 MGD, then the waste load allocation will use 2 MGD in the calculation of those water quality-based permit limits even if they are currently only discharging, 0.6 MGD today. These limits have always been based on the design capabilities of the wastewater treatment plant.

The assimilative capacity is adjusted per our mixing zone provisions in the Water Quality Standards. If more flow is being discharged then the concentration limits will decrease resulting in more stringent permit limits. This is a conservative approach in the sense that the more stringent permit limits are based on, using the example above, the capability to discharge 2 MGD when the facility may only be discharging 0.6 MGD.

Please clarify to what extent IDNR will require a facility to retroactively perform an alternative analysis for discharges that have been previously permitted.

There are no plans to retroactively apply alternatives analyses to previously permitted facilities if no changes are proposed. Performing another antidegradation review in accordance with the AIP on existing facilities, or those already approved for construction, would not be productive, would invite legal challenges or would not likely result in any significant environmental benefit.

Specific Comments

Glossary – Pollutant of Concern

EPA requests that IDNR clarify whether the current definition of "pollutants of concern" is limited to only pollutants with numeric criteria. If so, please explain why the definition excludes other pollutants covered by the state's narrative criteria that have the potential to degrade water quality, e.g., sediments and nutrients, and whether narrative translators will be applied as a pollutant of concern (e.g. using trophic state indices in a downstream lake/reservoir that may be immediately impacted by a new or expanded discharge to a stream).

No, the definition of pollutant of concern is not limited to only pollutants with numeric criteria.

Temporary and Limited Degradation

-It is unclear how the term "insignificant" is defined when determining which factors could affect degradation. Please clarify whether "insignificant" means an antidegradation review will not be required.

A review of the six factors in the definition is required. In this case the term insignificant is synonymous with temporary and limited. An attempt to clarify this will be a part of the latest draft AIP.

-Please clarify whether the review must consider all of the factors listed in the definition or only some. Adding an "and" or an "or" after the second-to-last factor will clarify this.

Ideally, this will be "all". However, some factors may not be applicable or appropriate depending on the activity being reviewed. For example, a dredge and

fill operation for building a bridge across a stream may not provide a good way to calculate a percent change in ambient conditions. An attempt to clarify this will be a part of the latest draft AIP.

-Please clarify how IDNR will weigh limitations of degradation for different pollutants in regards to factor c) "pollutants affected"
-Please clarify how pollutants with only narrative standards and pollutants with numeric criteria will be considered when determining temporary and limited degradation
-Please describe how the department will assess and weigh factors to determine temporary and limited degradation

The purpose of the "pollutants affected" factor is to identify which pollutants may be present in-stream as a result of the activity. The considerations could include the quantity of different pollutants affected or released by the activity or whether or not the pollutants in question regarding that activity may be an issue for that particular water body (e.g. endangered species, impaired waters, etc.)

We'll use the bridge example above to help provide some clarification as to IDNR's understanding:

-The main pollutants affected will likely be sediment moving downstream as a result of the activity.
-The length of time water quality may be impacted is a few months.
-Percent change in ambient conditions cannot be reliably calculated for sediment.
-Long term benefits for water quality may include engineered stream deepening below the bridge which may provide additional habitat options for aquatic life and serve as an area of refuge during critical low flow conditions.
-Certain narrative Water Quality Standards may be at risk for excessive sedimentation.
-The long term influences on existing uses may be arguably beneficial in this case due to incidental habitat creation.

In general, this dredge and fill type of activity would be considered temporary and limited and not require any further work. The activity would need to meet the Corps of Engineer's permit requirements to minimize impacts.

One factor that may complicate matters could be the presence of a mussel bed, including endangered mussels. If the mussel bed is located in the immediate proximity of the bridge construction then it may be in danger of being covered by the sediment released. These considerations are a part of this process in addition to the processes already in place by the Corp.

<u>Tier 2 Review</u>

Please clarify whether the "temporary and limited lowering" or "insignificant lowering" thresholds apply to Tier 2 waters.

Temporary and limited lowering applies to all surface waters. Clarification will be provided in the latest draft.

Tier 2 ½ Review

Related to the comment above on Tier 2, please clarify whether "unless the lowering is temporary and limited" means that the lowering is "insignificant" and does not require an antidegradation review.

The term insignificant is synonymous with temporary and limited. Per Section 2.4, activities resulting in temporary and limited degradation will be given a Tier 1 review.

Purpose and Overview

The third bullet reads: "assessing and determining water quality degradation." The meaning of this bullet is not clear. EPA requests clarification as to the meaning of determining water quality degradation and how this will be used as part of an analysis.

The meaning is simply to determine whether or not the activity results in water quality degradation. Section 2.1 and 2.4 expands this concept.

Section 1.1, Summary of Applicable Laws and Regulations on Antidegradation

The AIP is silent on discussing how IDNR will conduct antidegradation reviews for general use waters and the applicable narrative criteria that apply to those waters. EPA interprets the latter statement to mean that IDNR will apply its antidegradation implementation procedures and conduct reviews to general use waters.

EPA also requests clarification on how a general use water's assimilative capacity will be calculated and, in turn, how the potential for degradation will be evaluated on general use waters.

General use waters are true intermittent streams – streams that only flow after rainfall events. Maintaining general use water quality is a consideration for antidegradation implementation.

Assimilative capacity is not a factor for general use waters as there is no capacity in dry stream beds. These streams typically only flow after a rainfall event. Compliance with general water quality narrative criteria will always be a part of any degradation evaluation consistent with current implementation procedures of the department.

Section 1.2, Assigning Tier Protection Levels

Tier 2

The intent of a Tier 2 protection is to maintain and protect high quality water and not to allow for any degradation without having made a demonstration, with opportunity for public input, that such a lowering is necessary and important. The EPA believes that, in general, Tier 2 and higher protection is applicable to a majority of waters. EPA requests that IDNR provide an estimate of the percentage of the state's waters, subject to antidegradation, that will receive Tier 2 protection.

100%, unless the water is impaired by the pollutant in question.

According to the schematic flowchart in Appendix B, Tier 2 is only applicable to perennial waters. Please clarify the intent of the antidegradation policy is to only apply Tier 2 reviews to perennial waters and, if so, the rationale behind this approach.

Perennial streams and intermittent streams with perennial pools (and lakes & wetlands) account for essentially all the surface water in the state. Tier 2 operates under the premise that there is existing high quality water to protect. If there is no water present, then there is no way to support this premise.

Iowa has approximately 72,000 total stream miles. Of these 72,000 stream miles, 26,000 miles are considered perennial streams and 46,000 miles are considered intermittent streams. It is important to realize that the 26,000 miles are ones that possess water year round where existing water quality can be determined. This is where the water is located. The other 46,000 miles are generally presumed to be dry (unless after a rainfall event) where existing water quality cannot be practically determined.

The last sentence on page 5 reads: "Where waters have not been listed as impaired or as OIW and ONRW, the presumed antidegradation protection level is Tier 2 for all pollutants of concern." EPA requests clarification on how IDNR will conduct a Tier 1 review for impaired waters versus unimpaired waters.

Tier 1 applies to all surface waters as a minimum level of protection and requires that the level of water quality necessary for existing uses to be maintained and protected. Tier 1 requires that the Water Quality Standards be achieved. Tier 1 review shall prohibit degradation that may cause or contribute to the impairment of a beneficial use or violation of water quality criteria. Tier 1 protection applies as the default protection level to all surface waters, regardless of the existing water quality.

For pollutants receiving a Tier 1 review, the target water quality is determined by the Water Quality Standards in combination with these other permitting requirements.

Where a perennial surface water is listed on the state's §303(d) impaired waters list for one or more pollutants, and where existing water quality for other parameters is better than water quality standards, the surface water will be afforded Tier 1 and Tier 2 protection on a

pollutant-by-pollutant basis. That is, Tier 1 protection for the pollutants at or violating water quality standards and Tier 2 protection for pollutants that are better than water quality standards. Tier 2 ½ & Tier 3 protection will be afforded for all pollutants of concern in Outstanding Iowa Waters (OIW) and Outstanding National Resource Waters (ONRW).

Because Tier 1 and 2 reviews are conducted on a pollutant-by-pollutant basis as opposed to on a water body-by-water body approach, the allowance for degradation of water quality through a discharge of a pollutant depends on the existing level of that pollutant within the receiving water (i.e., the existing water quality), and the probability of promptly restoring the quality where pollutants levels are elevated. The pollutants of concern may be discharged to the water body if:

1) the discharge would not cause or contribute to a violation of the WQS;

2) all other conditions of the state permitting requirements are met (i.e., technology-based requirements are met); and

3) the permit is issued reflecting the highest statutory and regulatory requirements. Subsection 2.1 of this document lists other examples of discharges not requiring a Tier 2 review based on the temporary degradation that result during those discharges.

In the absence of information on existing water quality, waters shall automatically receive Tier 2 review prior to receiving any additional pollutants of concern that might result in a degradation of the water quality. An exception is made for ONRWs and OIWs that shall always be given Tier 3 & Tier 2 ½ protection.

Tier 1 review is assigned on a pollutant-by-pollutant basis by the department when the concentration of the pollutant of concern is at or violating to the applicable water quality criteria. Additionally, 303(d) listed segments are considered Tier 1 for pollutants of concern attributed to use impairment. Prior to allowing any new or expanded discharges of that pollutant, the department and applicant must conduct a Tier 1 review and demonstrate that the discharge would not violate the water quality criterion for that pollutant. Those pollutants that are documented as already being at or violating Water Quality Standards will receive only a Tier 1 review.

A Tier 2 review shall be conducted by default on all waters of the state for new and expanding discharges unless one of the following conditions apply:

- **the water is an ONRW or OIW to which Tier 3 & Tier 2 ½ protection applies or,**
- **the pollutant of concern is already at a level that exceeds the water quality criterion.**

The last sentence in the paragraph on page 6 reads: "Waters already containing pollutants of concern, at or violating the standard will qualify for Tier 1 protection for these pollutants." EPA requests clarification on what waters will receive Tier 1 protection versus "qualify" for Tier 1 protection in these instances.

The department will revise the next draft to reflect EPA's concerns regarding the term "qualify". The word "qualify" will be replaced by the word "received".

Assigning Tier 2 ½ & Tier 3 Review

The last paragraph in section 1.2, on page 7, allows for an exception for Tier 2 ½ waters. Exceptions for Tier 2 ½ are not consistent with IDNR's AIP regarding Tier 2 ½ waters ("no permanent lowering of WQ"). If, overall, the permanent new or expanded discharge would maintain or enhance the water quality in the OIW, please clarify whether a statement can be made that there is no permanent lowering of water quality. Also, this exception mentions Outstanding Iowa Water's (OIW's), but not Outstanding National Resource Water's (ONRW's), which we assume is what IDNR intended to reference; please clarify whether this assumption is correct. EPA recommends relocating this paragraph to a different section of the AIP where IDNR describes how a Tier 2 ½ review is done (with one exception).

The paragraph will be moved in the next draft to clarify these issues.

Section 1.3, Revising Tier Review Levels

The sentence between the two lists of bullets reads: "The department may adopt, by rule, site-specific water quality standards to maintain and protect existing water quality for an OIW or ONRW. The department may consider the following factors when making a decision whether to classify nominated surface water as OIW or ONRW." EPA requests clarification as to how the factors identified in the second set of bullets (criteria) relate to the criteria identified in the first set of bullets. Is the first set of bullets (criteria) for a citizen to consider when nominating a water body for OIW or ONRW status, and the second list of bullets (factors) for IDNR to consider when classifying a water body as an OIW or ONRW?

Yes. The department will attempt to clarify this in the next draft.

Please clarify whether or not a water body must be perennial in order to qualify as an OIW or ONRW (as noted in the first bullet in this section).

Yes. A water body must be perennial in nature in order to qualify as an OIW or ONRW.

Section 2, Iowa's Antidegradation Implementation Procedure, page 9

The 3rd paragraph reads: "Antidegradation reviews are required when proposed new or expanded discharges will degrade water quality. In addition to reviewing the necessity for a discharge and the social and economic importance of the discharging activity, the department and applicants must ensure that the proposed discharges fully protect beneficial uses, and achieve the highest statutory and regulatory requirements. The department must also assure that activities within the watershed are implementing cost-effective best management practices to control nonpoint source pollution. Determinations issued under these provisions must be made in accordance with the public notification process described in Section 6 of this document. A decision diagram of the antidegradation review process is provided in Appendix B of this document." Please

clarify whether this paragraph refers to all antidegradation reviews or only Tier 2 reviews.

This paragraph is intended to provide a general overview of Tier 2 antidegradation reviews. This will be clarified in the next draft.

Section 2.1, Determining the Appropriateness of Degradation, page 10

The first bullet under "A regulated discharge shall not be considered to result in degradation if" reads, "The proposed net increase in the discharge of a pollutant of concern does not result in an increase in potential mass loading or an increase in the ambient water quality concentration of the receiving water after mixing." The AIP cannot provide less restriction for mixing zones than what is allowed in Iowa's water quality standards. EPA requests an explanation regarding the use of mixing zones, and what acute and chronic criteria would be applied under the AIP.

The AIP is not providing less restriction for mixing zones than what is allowed in Iowa's water quality standards. The AIP is not intended change how the department currently implements the use of mixing zones and acute and chronic criteria as established in the water quality standards.

The second bullet reads: "A permit for an existing facility does not propose less stringent permit limits." Please clarify whether this only applies to OIW's and ONRW's.

This applies to all situations. If the existing facility is not proposing less stringent permit limits, then that shall not be considered to result in degradation.

The fifth bullet reads: "Treatment is added to a previously unpermitted discharge." Please clarify the meaning of this bullet, and provide an example of how it will be applied to unsewered communities.

It is not considered degradation if an existing and previously unsewered community provides some form of centralized treatment to handle the community's wastewater. These situations are widely considered to be water quality improvements, not degradation.

Section 2.2, Determining Existing Water Quality, page 11

The fourth paragraph reads: "The preferred approach for assessing existing water quality is to use previously collected data where available or presume default background levels". Please provide the rationale behind the approach of using "default background levels" and provide a description of the source(s) from which IDNR will obtain this data

Default background levels are considered to be a conservative approach for determining existing water quality. When calculating wasteload allocations the department only assumes upstream background concentrations for pollutants that

do not have site-specific monitoring data. Those pollutants include CBOD5, ammonia-nitrogen, copper, total dissolved solids, and chloride as well as other ions. For the remaining pollutants zero background is assumed.

To establish updated default values water quality data is taken from the long term water quality monitoring sites described earlier and pooled together to establish statewide levels.

The fourth paragraph also refers to the use of "appropriate reference data where it can be shown that the reference data is likely to reflect conditions in the water body in question." Please clarify what is meant by the term "reference data" and parameters will be considered as reference data.

When existing data is not readily available for a particular stream or at a location on the stream where the new or expanding discharge will occur a reference stream that has existing water quality data could be used as a surrogate to establish background levels. Potential surrogate steams could include those contained in the STORET database. For this approach to be successful it will require a determination of how one stream is representative of another. The benefit of allowing for surrogate steams is that it would prevent the need to have to collect water quality data for sites where no data exists.

Section 3.2, Evaluating and Selecting Alternatives, page 14

The fourth paragraph on page 14: "As a non-binding guideline, alternatives less than 115% of the base cost of pollution control measures are economically efficient. Alternatives greater than 115% of the base costs should also be considered if implementation of the alternative would produce a substantial improvement in the resulting discharge. Conditions that might warrant consideration of alternatives of greater cost (above 115%) are the effectiveness, reliability, and environmental factors identified above." EPA requests clarification on how and why IDNR selected 115% as its basis for selecting alternatives.

It is generally felt that this percentage is the amount that represents the point beyond which increasing costs yield less proportional increases in water quality. It is very important to remember that this is a <u>"Non-Binding Guideline"</u>. Alternatives greater than 115% of the base costs should also be considered if implementation of the alternative would produce a substantial improvement in the resulting discharge. Conditions that might warrant this consideration of more expensive alternatives are effectiveness, reliability, and environmental factors listed in Section 3.2.

Section 5.3, Intergovernmental Coordination and Review, page 21

EPA requests clarification on how IDNR will reconcile disagreements between local, state, and federal governments if another state wishes to use available assimilative capacity on an adjacent, upstream or downstream water body.

Distribution sheets will be used that are similar to the NPDES intergovernmental distribution sheets to notify affected or interested parties regarding antidegradation activities. This includes local, state, and federal governments to inform them of any these activities in their area or that may be of interest. Any potential disagreements will be reconciled within the current process as designed.

Section 61, General Permits, page 24

EPA requests clarification on how IDNR will provide antidegradation reviews for general permits. Please also provide clarification on how IDNR will make information on various projects covered by a general permit, and the receiving waters the permit may affect, available to the public.

The department intends to reopen the general permit templates at their renewal and explore options at that time to incorporate the requirements of the AIP. At this time, the department will identify best management practices (BMPs) and/or effluent limits for typical discharge scenarios that satisfy the three parts of the alternative analysis, i.e. practicability, economic efficiency and affordability.

Those BMPs and/or limits must meet the criteria for the selection of a pollution control alternative appropriate for the type of discharging activity proposed. Because general permits contain standard terms and conditions, the identified BMPs and/or limits will be required at all permitted sites involving that type of activity. The basic premise is that the use of these standard BMPs and/or limits will represent the highest level of pollution control generally accepted as practicable, economically efficient, and affordable for the type of activity causing the discharge.

The administrative record created at the time a general permit template is rewritten must also provide the documentation that, for the types of discharge activities covered by the general permit, no other cost-effective and reasonable alternatives are available to prevent or lessen a discharge from the activity covered by the general permit.

All general permits are required to be adopted through the state's rule making process as detailed in the Administrative Procedures Act. Public involvement is paramount in this process. Also, the Notices of Intent to apply for coverage under the general permit require public notice in the area newspapers that have the highest circulation.

Section 6.3, 401 Certifications, page 25

The last sentence in the third paragraph reads: "Minor activities covered under 404 nationwide permits may be subject to a full antidegradation review if the Director determines that cumulative degradation resulting from multiple discharges within a watershed, degradation from a single discharge over time, or other individual

circumstances warrant a full antidegradation review." EPA requests the rationale for this approach.

The 404 general permit requirements for minor activities have provisions for best management practices related to erosion and sediment control, project stabilization and prevention of water quality degradation. Applicants desiring to fulfill antidegradation requirements under this approach will be responsible for ensuring that permit requirements and relevant water quality certification conditions are met. The sentence in question was added to provide the ability or flexibility to address site-specific situations that may require a closer look for the reasons described above at the Director's discretion.

In reference to the last paragraph on page 25 and the first two sentences on page 26, the 404(b)(1) guidelines do not cover Tier 2 review as noted in EPA's WQS Handbook. EPA requests that these sections be deleted.

These sections will be deleted per EPA's request.

Section 9, Administrative Records of Decisions Regarding Antidegradation, page 30

The Record of Decision for Antidegradation must include the National Pollutant Discharge Elimination System permit as well as the waste load allocation calculations used to support the permit limits within the permit.

The department will include all appropriate documentation for the record of decision.